United States Department of Agriculture
Natural Resources Conservation Service

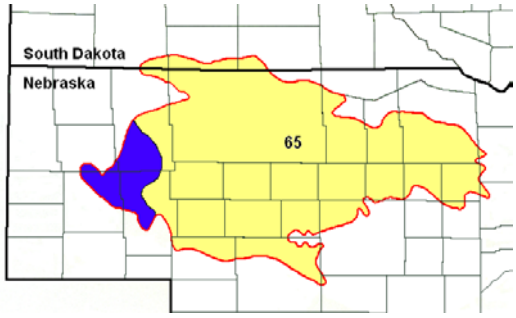
Ecological Site Description

Site Type: Rangeland

Site Name: Sands 14-17" P.Z.

Site ID: R065XY012NE

Major Land Resource Area:
65 – Nebraska Sand Hills



Physiographic Features

Landform: Dune

Aspect: N/A

	Minimum	Maximum
Elevation (feet):	3500	4000
Slope (percent):	3	24
Water Table Depth (inches):	None	None
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Very Low	Low

Climatic Features

The mean average annual precipitation varies from 14-17 inches, but has varied from 12 to 20 inches in the driest to wettest season. Approximately 70 percent of the annual precipitation occurs during the growing season of mid-April to late September. The average annual snowfall varies from about 34 inches to about 42 inches. The wind velocity is high throughout the year, averaging 10 to 12 miles per hour. Maximum wind velocities generally occur in the spring.

The average length of the growing season is 138 days, but the growing season has varied from 114 to 168 days. The average date of first frost in the fall is September 25, and the last frost in the spring is about May 8. July is the hottest month and January is the coldest. It is not uncommon for the temperature to reach 100 ºF during the summer. Summer humidity is low and evaporation is high. The winters are characterized with frequent northerly winds, producing severe cold with temperatures dropping to as low as -30 ºF.

Growth of native cool season plants begins mid to late March and continues to late June. Native warm season plants begin growth in early May and continue to late August. Green up of cool season plants may occur in September and October when adequate soil moisture is present.

	Minimum	Maximum
Frost-free period (days):	131	145
Freeze-free period (days):	153	165
Mean Annual Precipitation (inches):	14	17

Average Monthly Precipitation (inches) and Temperature (ºF):

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.33	0.47	9.6	37.8
February	0.39	0.46	14.7	43.7
March	0.86	0.97	21.7	50.0
April	1.51	1.52	32.0	60.7
May	2.87	3.31	42.8	70.9
June	2.94	3.09	51.8	81.7
July	2.05	2.54	57.2	88.9
August	1.07	1.93	55.2	87.0
September	1.16	1.60	44.7	77.5
October	0.87	0.94	32.7	65.5
November	0.51	0.61	20.8	49.5
December	0.31	0.50	12.9	40.3

Climate Stations		Period	
Station ID	**Location or Name**	**From**	**To**
NE7665	Scottsbluff WSO AP	1948	1997
NE2000	Crescent Lake Natl WLR	1948	1997

For other climate stations that may be more representative, refer to http://www.wcc.nrcs.usda.gov.

Influencing Water Features

Wetland Description:	**System**	**Subsystem**	**Class**	**Sub-class**
None	None	None	None	None

Stream Type: None
(Rosgen System)

Representative Soil Features

The features common to all soils in this site are the sandy textured surface soils and slopes of 3 to 24 percent. The soils in this site are excessively drained and formed in eolian sand. The surface layer is 2 to 9 inches thick. The texture of the subsurface ranges from loamy fine sand to fine sand. Runoff as evidenced by patterns of rill, gully or other water flow is low to very low due to the very high intake rate of these soils. Cryptobiotic crusts are present, but their function is not well understood. Some pedestalling of plants occurs, but it is not very evident on casual observation and occurs on less than 5% of the plants.

More information can be found in the various soil survey reports. Contact the local USDA Service Center for soil survey reports that include more detail specific to your location.

Major soil series correlated to this ecological site include: Valent.

Other soil series that have been correlated to this site include: none

Parent Material Kind: eolian deposits
Parent Material Origin: mixed
Surface Texture: fine sand, loamy fine sand, sand
Surface Texture Modifier: none
Subsurface Texture Group: sandy
Surface Fragments ≤ 3" (% Cover): 0
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 0
Subsurface Fragments > 3" (% Volume): 0

	Minimum	Maximum
Drainage Class:	excessively	excessively
Permeability Class:	rapid	rapid
Depth (inches):	>80	>80
Electrical Conductivity (mmhos/cm):	0	0
Sodium Absorption Ratio:	0	0
Soil Reaction (1:1 Water):	6.6	7.8
Soil Reaction (0.1M CaCl2):	NA	NA
Available Water Capacity (inches):	3	3
Calcium Carbonate Equivalent (percent):	0	0

Plant Communities

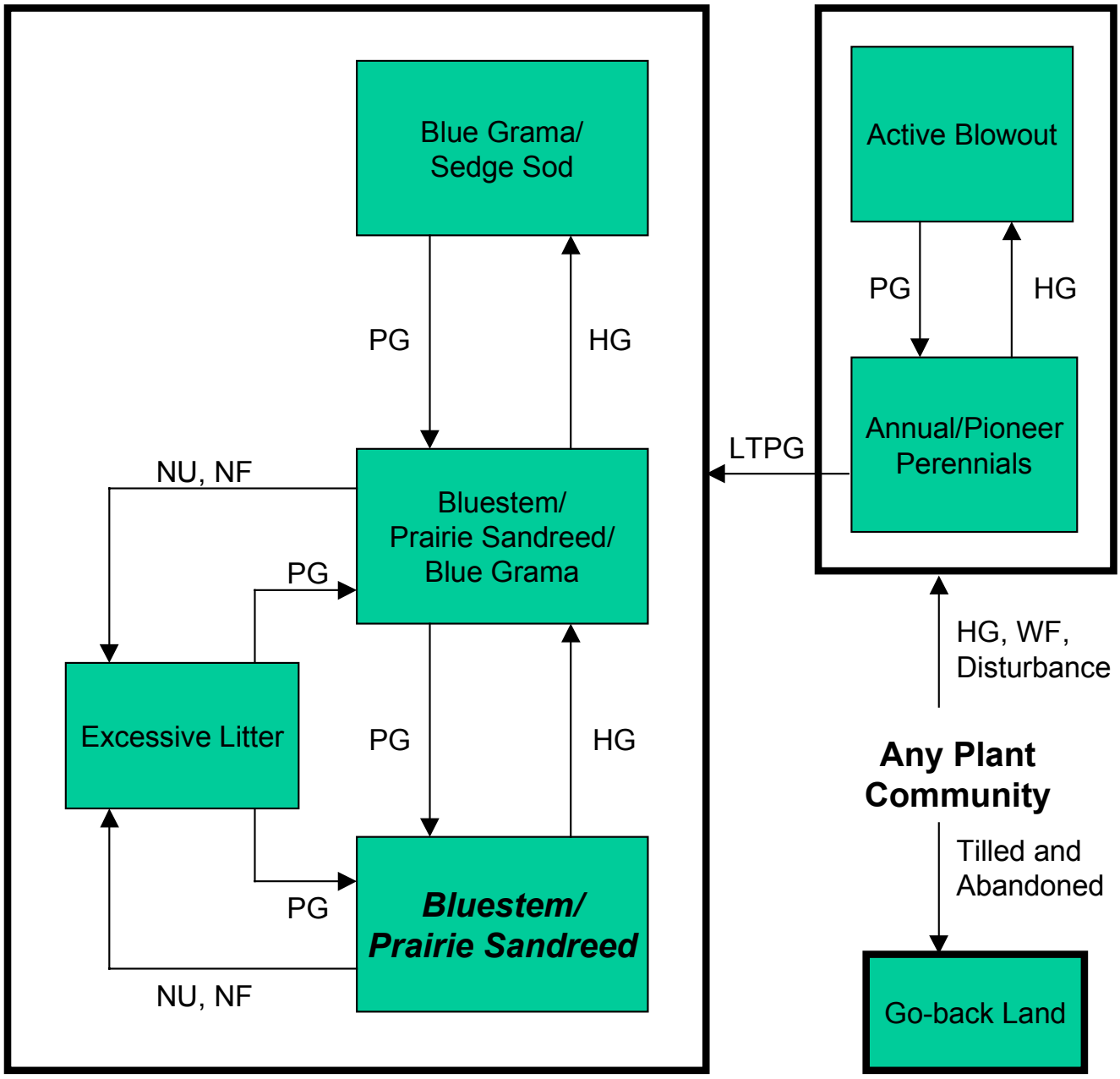
Ecological Dynamics of the Site:
Historically, large areas of blowing sand resulted in the active movement of the sand dunes. Evaporation from the soil surface was extremely high due to the large areas of bare ground, lack of litter and sparse plant populations. The transpiration rate of these sparse plant populations was also high due to the harsh soil environment. Occasional wild fires, severe grazing by transient bison herds and drought contributed to the lack of stability of the sand dunes. This lack of stability caused the dunes to go back and forth through multiple stages of plant succession over the course of time. Early perennial plants such as sandhill muhly, blowout grass and blowout penstemon were common due to their ability to tolerate the movement of the sand and droughty conditions. As these plants began to colonize and stabilize the sand movement, other perennials such as prairie sandreed, sand bluestem, hairy grama, lemon scurfpea and rose slowly became evident on the site. Annual plants such as sandbur, Texas croton, and annual sunflower eventually colonized the areas between the perennials.

As this site deteriorates, prairie sandreed, sand dropseed, and blue grama will increase. Species such as sand bluestem and switchgrass will decrease in frequency and production. The site is extremely resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance.

Interpretations are primarily based on the Bluestem/Prairie Sandreed Plant Community. It has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Subclimax plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

The following is a diagram that illustrates the common plant communities that can occur on the site and the transition pathways between communities. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways (diagram)



HG - heavy grazing; **LTPG** - long term prescribed grazing; **NF** - no fire;
NU - non use; **PG** - prescribed grazing; **WF** - wildfire

Plant Community Composition and Group Annual Production

		Bluestem/Prairie Sandreed			Bluestem/Prairie Sandreed/ Blue Grama			Blue Grama/Sedge Sod			Excessive Litter		
COMMON/GROUP NAME	**SYMBOL**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**
GRASSES & GRASS-LIKES			*1615 - 1805*	*85 - 95*		*1445 - 1615*	*85 - 95*		*1105 - 1170*	*85 - 90*		*1120 - 1330*	*80 - 95*
sand bluestem	ANHA	1	380 - 760	20 - 40	1	425 - 595	25 - 35	1			1	70 - 140	5 - 10
prairie sandreed	CALO	2	380 - 760	20 - 40	2	340 - 510	20 - 30	2	0 - 130	0 - 10	2	140 - 210	10 - 15
needleandthread	HECOC8	3	95 - 190	5 - 10	3	0 - 85	0 - 5	3	130 - 260	10 - 20	3	280 - 420	20 - 30
GRAMA		**4**	**19 - 190**	**1 - 10**	**4**	**0 - 170**	**0 - 10**	**4**	**325 - 455**	**25 - 35**	**4**	**14 - 70**	**1 - 5**
blue grama	BOGR2	4	19 - 190	1 - 10	4	85 - 170	5 - 10	4	325 - 455	25 - 35	4	14 - 70	1 - 5
hairy grama	BOHI2	4	19 - 95	1 - 5	4	0 - 85	0 - 5				4	14 - 70	1 - 5
WARM-SEASON GRASSES		**5**	**0 - 190**	**0 - 10**	**5**	**34 - 170**	**2 - 10**	**5**	**0 - 65**	**0 - 5**	**5**	**28 - 210**	**2 - 15**
little bluestem	SCSC	5	0 - 190	0 - 10	5	0 - 85	0 - 5				5	0 - 140	0 - 10
switchgrass	PAVI2	5	0 - 95	0 - 5							5	0 - 70	0 - 5
sand dropseed	SPCR	5	0 - 95	0 - 5	5	0 - 85	0 - 5	5	0 - 65	0 - 5	5	0 - 70	0 - 5
sand paspalum	PASE5	5	0 - 38	0 - 2	5	0 - 34	0 - 2				5	0 - 28	0 - 2
sand lovegrass	ERTR3	5	0 - 95	0 - 5	5	0 - 17	0 - 1				5	0 - 70	0 - 5
sandhill muhly	MUPU2	5	0 - 95	0 - 5	5	0 - 85	0 - 5				5	0 - 70	0 - 5
NATIVE GRASS/GRASS-LIKES		**6**	**38 - 152**	**2 - 8**	**6**	**17 - 85**	**1 - 5**	**6**	**65 - 195**	**5 - 15**	**6**	**14 - 140**	**1 - 10**
Indian ricegrass	ACHY	6	0 - 38	0 - 2	6	0 - 34	0 - 2				6	0 - 28	0 - 2
prairie junegrass	KOMA	6	19 - 95	1 - 5	6	0 - 85	0 - 5	6	0 - 65	0 - 5	6	14 - 70	1 - 5
Scribner panicum	DIOLS										6	0 - 28	0 - 2
sedge	CAREX	6	19 - 95	1 - 5	6	17 - 85	1 - 5	6	65 - 130	5 - 10	6	0 - 28	0 - 2
other perennial grasses	2GP	6	0 - 38	0 - 2	6	0 - 34	0 - 2	6	0 - 26	0 - 2	6	0 - 28	0 - 2
NON-NATIVE GRASSES		**7**			**7**	**0 - 34**	**0 - 2**	**7**	**0 - 26**	**0 - 2**	**7**	**0 - 28**	**0 - 2**
cheatgrass	BRTE				7	0 - 34	0 - 2	7	0 - 26	0 - 2	7	0 - 28	0 - 2
FORBS		*8*	*95 - 190*	*5 - 10*	*8*	*0 - 170*	*0 - 10*	*8*	*0 - 130*	*0 - 10*	*8*	*70 - 210*	*5 - 15*
annual sunflower	HEAN3	8	0 - 19	0 - 1	8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 140	0 - 10
gayfeather	LIATR	8	0 - 19	0 - 1	8	0 - 17	0 - 1				8	0 - 14	0 - 1
green sagewort	ARDR4	8	0 - 19	0 - 1				8	0 - 13	0 - 1	8	0 - 14	0 - 1
heath aster	SYER	8	0 - 19	0 - 1							8	0 - 14	0 - 1
Missouri goldenrod	SOMI2										8	0 - 14	0 - 1
penstemon	PENST	8	0 - 19	0 - 1	8	0 - 17	0 - 1				8	0 - 14	0 - 1
rush skeletonweed	LYJU	8	0 - 19	0 - 1	8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 14	0 - 1
scurfpea	PSORA2	8	0 - 19	0 - 1	8	0 - 17	0 - 1				8	0 - 14	0 - 1
spiderwort	TRADE	8	0 - 19	0 - 1	8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 14	0 - 1
tenpetal blazingstar	MEDE2				8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 14	0 - 1
thistle	CIRSI	8	0 - 19	0 - 1	8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 14	0 - 1
western ragweed	AMPS	8	0 - 19	0 - 1	8	0 - 17	0 - 1	8	0 - 13	0 - 1	8	0 - 14	0 - 1
other perennial forbs	2FP	8	0 - 38	0 - 2	8	0 - 34	0 - 2	8	0 - 26	0 - 2	8	0 - 28	0 - 2
other annual forbs	2FA							8	0 - 26	0 - 2	8	0 - 28	0 - 2
SHRUBS		*9*	*19 - 95*	*1 - 5*	*9*	*17 - 85*	*1 - 5*	*9*	*0 - 65*	*0 - 5*	*9*	*14 - 70*	*1 - 5*
rose	ROSA5	9	19 - 57	1 - 3	9	0 - 51	0 - 3				9	14 - 42	1 - 3
sand sagebrush	ARFI2	9	19 - 57	1 - 3	9	17 - 51	1 - 3	9	0 - 13	0 - 1	9	14 - 42	1 - 3
small soapweed	YUGL	9	19 - 57	1 - 3	9	17 - 51	1 - 3	9	0 - 13	0 - 1	9	14 - 42	1 - 3
fringed sagewort	ARFR4	9	19 - 57	1 - 3	9	0 - 51	0 - 3	9	0 - 65	0 - 5	9	14 - 42	1 - 3
brittle cactus	OPFR	9	0 - 19	0 - 1	9	0 - 17	0 - 1	9	0 - 13	0 - 1	9	0 - 14	0 - 1
western sandcherry	PRPUB	9	19 - 38	1 - 2							9	0 - 14	0 - 1
other shrubs	2SHRUB	9	19 - 57	1 - 3									

Annual Production lbs./acre	LOW RV HIGH	LOW RV HIGH	LOW RV HIGH	LOW RV HIGH
GRASSES & GRASS-LIKES	1495 - 1701 - 2205	1385 - 1564 - 2035	1000 - 1203 - 1395	1025 - 1218 - 1310
FORBS	90 - 143 - 195	0 - 85 - 175	0 - 65 - 135	65 - 140 - 215
SHRUBS	15 - 57 - 100	15 - 51 - 90	0 - 33 - 70	10 - 42 - 75
TOTAL	1600 - 1900 - 2500	1400 - 1700 - 2300	1000 - 1300 - 1600	1100 - 1400 - 1600

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. RV = Relative value.

Plant Community and Vegetation State Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Bluestem/Prairie Sandreed Plant Community

Interpretations are primarily based on the Bluestem/Prairie Sandreed Plant Community (this is also considered climax). This site evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community is found on areas that are properly managed with grazing and/or prescribed burning, and sometimes on areas receiving occasional short periods of rest.

This plant community consists chiefly of tall and mid warm-season grasses. Principle dominants are sand bluestem, prairie sandreed, and little bluestem. Grasses of secondary importance are needleandthread, switchgrass, sand dropseed, and hairy or blue grama. Sedges occur in the understory. Forbs and shrubs such as gayfeather, stiff sunflower, leadplant, rose and sandcherry are significant. This plant community is about 85 percent grasses, 10 percent forbs, and 5 percent shrubs by weight.

This plant community is extremely resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a healthy and sustainable plant community (site/soil stability, watershed function, and biologic integrity).

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6534
Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands
Growth curve description: Warm-season dominant, cool-season subdominant, mid & tall grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	5	15	25	30	10	7	3	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Heavy grazing and/or improper rest periods will convert this plant community to the *Bluestem/Prairie Sandreed/Blue Grama Plant Community*. Continuous heavy grazing tends to accelerate this movement.

- Non-use and no fire will convert this plant community to the *Excessive Litter Plant Community*.

Bluestem/Prairie Sandreed/Blue Grama Plant Community

This plant community developed under short term continuous grazing. It is made up of a mixture of warm and cool season grasses. The potential vegetation is about 85% grasses or grass-like plants, 10% forbs, and 5% shrubs. The dominant grasses include sand bluestem and prairie sandreed. Other grasses may include blue grama, needleandthread, and sand dropseed and sedges. The dominant forbs include western ragweed, annual eriogonum, and spiderwort. Dominant shrubs in this community include rose, cactus, yucca, and sand sagebrush. Compared to the Bluestem/Prairie Sandreed Plant Community, blue grama, sand dropseed and annual forbs increased. Sand bluestem, sand lovegrass and little bluestem have decreased. Annual forbs invade the plant community. Plant diversity is high.

This plant community is not resistant to change. Changes in climate, fire patterns, and/or grazing management can result in a shift to another plant community. This community is fairly resilient upon removal of normal disturbances because of the high diversity of plant species and the high amount of litter. Soil erosion is low. The water cycle is functioning because of the plant and litter cover on the soil surface. Infiltration is high because of soil texture and surface litter. Runoff is low.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6534
Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands
Growth curve description: Warm-season dominant, cool-season subdominant, mid & tall grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	5	15	25	30	10	7	3	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Prescribed grazing, or prescribed grazing with periodic fire will convert the plant community to the *Bluestem/Prairie Sandreed Plant Community*. The probability of this occurring is high.
- Heavy grazing or improper rest periods will convert this plant community to the *Blue Grama/Sedge Sod Plant Community*. Continuous heavy grazing tends to accelerate this movement to the *Blue Grama/Sedge Sod Plant Community*.
- Non-use and no fire will convert this plant community to the *Excessive Litter Plant Community*.

Blue Grama/Sedge Sod Plant Community

This plant community developed under long-term season long grazing with inadequate rest during the growing season. It is made up of warm-season short grasses, cool-season grasses, grass-likes, and grazing tolerant shrubs. The potential vegetation is about 85% grasses or grass-like plants, 10% forbs, and 5% shrubs. The dominant grass is blue grama. Other grasses or grass-likes include needleandthread, sedges, sand dropseed, and prairie sandreed. The dominant forbs include western ragweed and annual sunflower. The dominant shrubs include sand sagebrush and yucca. Compared to the Bluestem/Prairie Sandreed Plant Community, sandhill muhly, hairy grama, sedges, ragweed and rose have increased, while prairie sandreed, sand bluestem and switchgrass have decreased. The plant diversity has decreased from that of the Bluestem/Prairie Sandreed Plant Community.

This plant community is not resistant to change due to a higher percentage of bare ground. Under disturbance, this plant community is not resilient. The soil erosion is moderate. The water cycle is impaired due to a reduction in litter and the potential for higher runoff and decreased infiltration.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6535
Growth curve name: Nebraska/South Dakota Sandhills, Grama
Growth curve description: Warm-season dominant, short grass.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	15	30	25	15	10	0	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- With prescribed grazing, including adequate recovery periods, this plant community will be converted to the *Bluestem/Prairie Sandreed/Blue Grama Plant Community*.

Excessive Litter Plant Community

This plant community developed under many years of no grazing or fire to disturb the vegetation. Plant litter accumulates rapidly as this community first develops. Eventually litter levels become high enough that plants are crowded out and bare ground areas develop. These bare ground areas are commonly filled by annual forbs and grasses. Typically bunchgrasses develop dead centers and rhizomatous grasses form small colonies because of a lack of tiller stimulation. The potential vegetation is about 80% grasses or grass-like plants, 15% forbs, and 5% shrubs. Dominant grasses include prairie sandreed, little bluestem, and needleandthread. Other grasses include sand bluestem, sand dropseed, and prairie junegrass. Dominant forbs include annual sunflower and ten-petal mentzelia. Dominant shrubs include yucca, cactus, and sand sagebrush. Compared to the Bluestem/Prairie Sandreed Plant Community, sand bluestem, prairie sandreed, and perennial forbs have decreased, while needleandthread, sedges, and annual forbs have increased.

This plant community will change rapidly if plant manipulation is allowed to occur (grazing by domestic livestock or possibly periodic fire). If the intensity and duration of the disturbance is not great enough, it will return to this plant community somewhat easily. Soil erosion is low when the surface litter is high, but then increases as the litter disappears. The water cycle is functioning. Infiltration is high and runoff is low.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6536
Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands, Non-Use
Growth curve description: Warm-season dominant, cool-season subdominant, excessive litter.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	5	15	30	30	10	5	0	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Prescribed grazing or prescribed grazing with fire will convert the plant community to the *Bluestem/Prairie Sandreed Plant Community*. Depending on the length of time non-use occurred and the composition of the plant species prior to removal of use and/or fire, these practices will move this plant community to the *Bluestem/Prairie Sandreed Plant Community* or the *Bluestem/Prairie Sandreed/Blue Grama Plant Community*.

Annual/Pioneer Perennial Plant Community

As succession progresses, sandhill muhly, blowout grass and sand bluestem begin to colonize. Sandbur, lemon scurfpea, Texas croton, and annual sunflower begin to come in with prairie sandreed, hairy grama, and rose slowly becoming evident on this plant community.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6537
Growth curve name: Nebraska/South Dakota Sandhills, Annual/Pioneer Perennial
Growth curve description: Short cool season grasses, and cool season annual forbs.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	10	20	30	20	5	5	5	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- With continued disturbance (such as heavy grazing) and/or wildfire, this plant community will move towards the *Active Blowout Plant Community*.
- Under long-term prescribed grazing (10+ years), including adequate rest periods, succession will progress leading to the *Bluestem/Prairie Sandreed Plant Community*. The slope, aspect, size and relative abundance of perennial plants will influence the rate that change will occur.

Active Blowout Plant Community

This plant community can be reached from any other plant community with significant disturbances such as heavy grazing, and repeated wildfire. Large areas of blowing sand result in movement and possible enlargement of the blowout. Evaporation and transpiration of existing plants are extremely high due to bare ground, lack of litter, fire, and few plants. This plant community is in a low successional stage from poor soil development, fire occurrence and sporadic herbivore use. Sandhill muhly and blowout grass are present due to their drought tolerance.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6538
Growth curve name: Nebraska/South Dakota Sandhills, Active Blowout
Growth curve description: Areas of open, blowing sand and pioneer species.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	0	10	35	30	20	5	0	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- With prescribed grazing and concentrated short-term animal impact (such as feeding hay on the blowout), this plant community will move to the *Annual/Pioneer Perennial Plant Community*. Establishment of vegetation may be accelerated by broadcast seeding of a temporary cover crop prior to removal of animal impact.

Go-back Land Plant Community

This plant community can be reached whenever severe mechanical disturbance occurs. The vegetation on this plant community varies greatly, sometimes being dominated by little bluestem, three-awn, sand dropseed, prairie sandreed, marestail, annual sunflower, green sagewort, and/or ragweed. Other plants that occur on the plant community include rose, yucca, sand bluestem, switchgrass, and needleandthread. Compared to the Bluestem/Prairie Sandreed Plant Community, warm-season natives have decreased. Annual forbs and grasses have become established in the plant community.

This plant community is variable in its resistance to change and is resilient depending on past management practices. Soil erosion is typically evident in low successional stages. The water cycle is not greatly affected.

Many of the areas seeded prior to the 1960's are now dominated by little bluestem.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Bluestem/Prairie Sandreed Plant Community:

Bluestem/Prairie Sandreed/Blue Grama Plant Community:

Blue Grama/Sedge Sod Plant Community:

Excessive Litter Plant Community:

Annual/Pioneer Perennial Plant Community:

Active Blowout Plant Community:

Animal Preferences (Quarterly – 1,2,3,4†)

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
annual sunflower	U U D U	U D U U	U U D U	U D U U	U D U U	U U D U	U D U U
blue grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
brittle cactus	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
fringed sagewort	U U U U	U U U U	U U U U	U D D U	U P P D	U U U U	U U U D
gayfeather	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
green sagewort	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U
hairy grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
heath aster	U U D U	U U P U	U U D U	U U P U	U U P U	U U D U	U U P U
Indian ricegrass	D P U D	N P N D	D P U D	N P N D	N P N D	D P U D	D P U D
little bluestem	U D D U	N D N N	U D D U	N D N N	N D N N	U D D U	U D D U
Missouri goldenrod	U U D U	N U U N	U U D U	N U U N	N U U N	U U D U	N U U N
needleandthread	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
penstemon	U U U U	U P P U	U U U U	U P P U	U P P U	U U U U	U P P U
prairie junegrass	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
prairie sandreed	U D D U	U D U U	U D D U	U U D U	U U D U	U D D U	U D D U
rose	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U
rush skeletonweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
sand bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
sand dropseed	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N
sand lovegrass	U D D U	N N N N	U D D U	N N N N	N N N N	U D D U	U D D U
sand paspalum	N U U N	N U N N	N U U N	N U N N	N U N N	N U U N	N U U N
sand sagebrush	U N N U	U N N U	U N N U	U N N U	U N N U	U N N U	U N N U
sandhill muhly	N U N N	N N N N	N U N N	N N N N	N N N N	D U U D	N U N N
Scribner panicum	U U D U	N U N N	U U D U	N U N N	N U N N	U U D U	U U D U
scurfpea	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
sedge	U D U D	U P N D	U D U D	U D U D	U D U D	U D U D	U D U D
small soapweed	D N N D	D U U D	D N N D	D U U D	D U U D	D N N D	D U U D
spiderwort	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
switchgrass	U D D U	U D U U	U D D U	N N N N	N N N N	U D D U	U D D U
tenpetal blazingstar	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
thistle	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
western ragweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
western sandcherry	D P P D	D U U D	D P P D	P U D P	D U U D	D P P D	P U U P

N = not used; **U** = undesirable; **D** = desirable; **P** = preferred; **T** = toxic
† Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. With consultation of the land manager, more intensive grazing management may result in improved harvest efficiencies and increased carrying capacity.

Plant Community	Production (lbs./acre)	Carrying Capacity* (AUM/acre)
Bluestem/Prairie Sandreed	1900	0.60
Bluestem/Prairie Sandreed/Blue Grama	1700	0.54
Blue Grama/Sedge Sod	1300	0.41
Excessive Litter	1400	0.44
Annual/Pioneer Perennial	-	-
Active Blowout	-	-

* Continuous season-long grazing by cattle under average growing conditions.
If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage. During the dormant period, the forage for livestock will likely be lacking protein to meet livestock requirements, and added protein will allow ruminants to better utilize the energy stored in grazed plant materials. A forage quality test (either directly or through fecal sampling) should be used to determine the level of supplementation needed.

Hydrology Functions

Water is the principal factor limiting forage production on this site. Normal rainfall is limited to 14-17 inches per year. Valent soils on this site are in Hydrologic Soil Group A (low runoff and high infiltration even when thoroughly wetted). Water transmission through Group A soils is normally greater than 0.30 inches per hour. Runoff is expected to occur only during the most intense storms (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

For the interpretive plant community, rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as little bluestem. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present but only cover 1-2% of the soil surface. Overall this site has the appearance of being stable and productive.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

Seed harvest of native plant species can provide additional income on this site.

Supporting Information

Associated Sites

(065XY013NE) – Choppy Sands 14-17" P.Z.
(065XY011NE) – Sandy 14-17" P.Z.
(065XY024NE) – Subirrigated

Similar Sites

(065XY013NE) – Choppy Sands 14-17" P.Z.
[steeper slope; lower production; blowout grass present; shrubs more evident]
(065XY011NE) – Sandy 14-17" P.Z.
[slope not as steep; higher production; prairie sandreed dominant]

Inventory Data References

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Dave Cook, Rangeland Management Specialist, NRCS; Dwight Hale, Engineer, NRCS; Sheila Luoma, Resource Conservationist, NRCS; Marla Shelbourn, Rangeland Management Specialist, NRCS; Dave Steffen, Rangeland Management Specialist, NRCS.

Data Source	Number of Records	Sample Period	State	County
SCS-RANGE-417	3	1983 – 1998	NE	Morrill, Sheridan
Ocular estimates	0	19 -19	XX	county

State Correlation

N/A

Type Locality

State: **Township:** **Latitude:**
County: **Section:** **Longitude:**
General Legal Description: **Range:** **Is the type locality sensitive? (Y/N):**

Field Offices

Alliance, NE
Bridgeport, NE
Oshkosh, NE
Rushville, NE

Counties

Box Butte, NE
Morrill, NE
Garden, NE
Sheridan, NE

Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States; 44a – Nebraska Sand Hills.

Other References

Other sources used as references include: USDA NRCS Water & Climate Center, USDA NRCS National Range and Pasture Handbook, USDA NRCS Soil Surveys from various counties, Atlas of the Sandhills.

Site Description Approval

_____ _____
State Range Management Specialist Date

_____ _____
State Range Management Specialist Date